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ABSTRACT

The Graduate Management Admission Council (GMAC) Validity Study Service was created to enable graduate schools of management to investigate the adequacy of the devices and procedures they use for selection purposes and to facilitate the accumulation and summary of data from many individual graduate management schools. Participating schools are required to provide information on three standard predictors Graduate Management Admission Test (GMAT)-Verbal and GMAT-Quantative scores, and undergraduate grade point average) and one standard criterion (first year grade average in management school). In addition, each school may specify optional subgroupings, predictors, and criteria relevant to its admissions process. From 1978-79 through 1980-81, 85 separate studies have been conducted through the Validity Study Service. This report provides: (1) a descriptive summary of the validity of GMAT scores and undergraduate grade point average as predictors of first year grade point average in management school; and (2) a categorization of optional variables designated by individual schools along with the correlational analyses for the most frequently specified variables. For nearly all of the included studies, the use of both undergraduate grades and GMAT scores together results in better prediction of first year average, compared to the use of either preadmission measure alone. (Author/BS)

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GMAC Research Report 82-1

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Educational Testing Service

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Abstract

The GMAC Validity Study Service was created to enable graduate schools of management to investigate the adequacy of the devices and procedures they use for selection purposes and to facilitate the accumulation and summary of data from many individual graduate management schools. Farticipating schools are required to provide information on three standard predictors (GMAT-V, GMAT-Q, and undergraduate grade point average) and one standard criterion (first year average in management school). In addition, each school may specify optional subgroupings, predictors, and criteria relevant to its admissions process. In the past three years (1978-79 through 1980-81), 85 separate studies have been conducted through the Validity Study Service. This report provides (a) a descriptive summary of the validity of GMAT scores and undergraduate grade point average as predictors of first year grade point average in management school, and (b) a categorization of optional variables designated by individual schools along with the correlational analyses for the most frequently specified variables. One of the major findings of the summary is that, for nearly all of the included studies, the use of both undergraduate grades and GMAT scores together results in better prediction of first year average, compared to the use of either preadmission measure alone.

The Predictive Validity of Preadmission Measures in Graduate Management Education: Three Years of the GMAC Validity Study Service

In the belief that graduate schools of management have both a professional and, increasingly, a legal responsibility to demonstrate adequacy of the devices and procedures that they use for selection purposes, the Graduate Management Admission Council (GMAC) established the GMAC Validity Study Service (VSS). The service was designed to enable graduate management schools themselves to conduct assessments of the effectiveness of the procedures they used to select candidates. In addition, the VSS facilitates the accumulation and summary of data from many individual graduate management schools--data that may bear upon the admission practices of all schools.

The VSS was first offered during the 1977-78 academic year, when 10 graduate management schools participated in a pilot project (Powers & Evans, 1978). During the 1978-79 academic year, the first fully operational year of the VSS, 26 graduate management schools participated in the service (Powers & Hardy, 1980). During 1979-80, 38 schools participated (Powers & Moss, 1980), and an additional 21 schools participated in the following year, 1980-81. This report summarizes the results of the 85 individual validity studies conducted during the past three years.

Design and Analysis

All schools that participate in the Validity Study Service (VSS) are required to provide information on a set of standard variables: first-year average (FYA) in management school, to be used as a criterion of academic success, and Graduate Management Admission Test scores, both Verbal

(GMAT-V) and Quantitative (GMAT-Q), and undergraduate grade point average (UGPA), to be used as predictors. The requirement of standard data ensures that information is uniformly obtained for the most traditional and widely used preadmission variables. In addition, to accommodate the diversity among graduate management schools with respect to educational goals, curricula, and the value placed on various candidate attributes, admissions personnel are encouraged to provide information on other variables that they consider relevant to their admissions process. Each school may specify two additional predictors, two additional criteria, and two variables for subgrouping their students. To facilitate both the design of the study and the collection of data, all schools are provided with a guide, Designing Your Validity Study, prepared for the Graduate Management Admission Council. The guide describes the goals of the VSS and provides suggestions to help admission personnel design studies (i.e., choose optional variables, sample sizes and characteristics, etc.) that will be relevant and useful to them.

All schools that participate in the Service receive an extensive, individualized report based on the analysis of the data they provide. This report furnishes (a) descriptive statistics for each predictor and criterion for which information was provided for the total group and for each specified subgroup, (b) predictor-criterion analyses of standard and optional variables, which include simple and multiple correlation coefficients between the criteria and the various combination of predictors, standard errors of estimates, and regression weights for predictor variables that give the best predictions of criteria in the present sample, (c) appendices of additional

statistical information intended to facilitate further analyses by interested users, and (d) a detailed guide to assist schools in appropriately interpreting and using the results of their studies.

The purpose of this summary report is two fold.

- First, it provides for a sample of graduate management schools a descriptive summary of the validity of the GMAT scores and undergraduate grade point average, both alone and in combination, as predictors of academic success, defined here as first-year average. In the interests of brevity, only simple and multiple correlation coefficients are reported, since they are the most commonly used indices of predictive validity.
- Second, the report provides a descriptive summary of variables that are of interest to and, presumably, are valued by the participating schools as indicators of student potential and criteria for success. Correlational analyses are presented for the most commonly specified optional variables that examine the relationships between (a) optional predictors and FYA, and (b) standard predictors and optional criteria.

A Description of Participating Schools and School Designated Student Samples

The three yearly cycles of studies summarized by this report were characterized by a gradually increasing pool of schools invited to participate in the VSS. In 1978-79, only member schools of the GMAC, an organi-

zation of approximately 60 graduate schools of management, were invited to participate. In the following year, all graduate management schools that require the GMAT were invited to participate. Finally, in 1980-81, all schools that use the GMAT in admissions were given the opportunity to participate.

Two characteristics of the sample of 85 studies summarized in this report should be noted. First, the sample of schools is completely self-selected. Despite this self-selection, however, the participating schools do represent the broad spectrum of master's programs in graduate management education: large and small programs, private and public schools, more selective and less selective programs, and programs varying widely in quantitative emphasis. Second, of the schools included in the report, three participated in the Service each of the three summarized years and are thus represented by three studies each in the report. Likewise, five schools participated in the Service twice during the three summarized years and are thus represented by two studies each in the report. As the pool of "repeater schools" becomes larger, it will be interesting to investigate within-schools trends across years.

For each school, the sample size and the means and standard deviations on the standard predictors (UGPA, GMAT-V, and GMAT-Q) and the standard criterion (FYA) appear in Table 1. The samples for which data were provided by schools ranged in size from 58 to 543, with a mean sample size of 175. The mean GMAT-V scores range from 14.9 to 38.4, and the mean GMAT-Q scores from 15.1 to 37.8. Standard deviations range from 4.9 to 8.8 for GMAT-V, and from 4.9 to 8.2 for GMAT-Q. When compared with the descriptive data for all GMAT examinees from 1976 to 1979 (mean GMAT-V=26, standard

deviation=9; mean GMAT-Q=27, standard deviation=8) (ETS, 1979), these statistics indicate that some degree of institutional selection or candidate self-selection (either in applying or in accepting offers) have resulted from the consideration of GMAT scores or some other variable(s) that are correlated with GMAT scores. The FYA means for the 78 participating schools that used a 0-4 grading system range from 2.25 to 3.66, with 73 of the FYA means above 3.00, resulting in a lack of variability of FYA within schools. The problem of "restriction in range" on predictor and criterion variables has been noted in previous VSS summaries. Restriction in the range of possible scores probably results in underestimating the predictive validity of the preadmission variables studied here.

Correlational Analyses of Standard Predictors and First-year Average

The correlational analyses that were performed for each individual school are summarized in Table 2. Simple correlations for each standard predictor (UGPA, GMAT-V, GMAT-Q) with FYA, and multiple correlations for two combinations of predictors (GMAT-V and GMAT-Q; GMAT-V, GMAT-Q, and UGPA) with FYA are presented.

As can be seen, the coefficients exhibit considerable school-to-school variability, some of which can be attributed to sampling fluctuations. That is, even if the true correlations were the same for each school, some variability among the coefficients would be observed. Some of this variation may, however, reflect differences among schools in such

factors as degree of selectivity, type of curriculum, grading practices employed, and the relative weights given to various predictors in making selection decisions. Each of these factors may affect the correlation between a given predictor, or combination of predictors, and a criterion. In addition, a particular correlation coefficient must be interpreted in light of the sample size on which it is based and the number of variables considered. Smaller sample sizes and larger numbers of variables require larger correlation coefficients to obtain statistical significance. For example, a simple correlation coefficient (i.e., between one predictor variable and a criterion) of .25 is statistically significant ($p < .05$) for sample sizes of 60 or more, while a multiple correlation of .25 involving two predictor variables requires a sample size of 90 to be statistically significant at the same level.

The median coefficients for the simple correlations of UGPA, GMAT-V, and GMAT-Q with FYA are .24, .25, and .30 respectively. The ranges of correlations with FYA for these three variables are .05 to .45, .04 to .42, and .03 to .53, respectively. The median multiple correlations for the combination of GMAT-V and GMAT-Q scores with FYA and the combination of three predictors with FYA are .35 and .44, with ranges from .07 to .55 and .21 to .63. It is important to note that the median multiple correlation for the three predictors in combination (.44) is significantly higher than the median correlation for either UGPA alone (.24) or for the combination of GMAT scores (.35). This suggests that the use of both UGPA and GMAT scores together, instead of either one alone, does result in better pre-

diction of first-year average.

School Designated Variables

In addition to the standard predictors (UGPA, GMAT-V, and GMAT-Q) and the standard criterion (FYA), the Validity Study Service permits schools to submit data for up to two additional predictors and two additional criterion variables. These optional variables, which are defined by the schools themselves, are quite diverse. However, certain types of optional variables are chosen relatively frequently by schools. Correlational analyses for these most frecuently chosen optional variables are presented in the following sections of this report.

Optional Predictors

The optional predictor specified most often was "amount of work experience prior to entering graduate school," which was used in 30 of the 85 studies. Correlational results for this variable are summarized in Table 3, along with results for the other commonly selected predictors. The simple correlations of "work experience" with FYA ranged from -.14 to .35, with a median of .06. The median increase in the multiple correlation resulting from the additional of "work experience" to the equation already containing UGPA, GMAT-V, and GMAT-Q was .01. In evaluating this finding, it is important to note that the justification for "work experience" as a preadmission variable is usually made on grounds other than its relationship to academic performance. For example, work experience may be viewed as reflecting qualities related to managerial potential

apart from academic potential. Also, students with a variety of different work experiences may be regarded as potential contributors to the enrichment of classroom learning for all students.

The second most frequently chosen group of optional predictors might be characterized as "age-related." These variables, which include age itself as well as variations on "years since graduation," were specified in 28 of the 85 studies. A school might choose such an age-related variable as an index of maturity or as a surrogate for work experience. Results for these age-related variables (Table 3) show simple correlations with FYA ranging from -.18 to .28 with a median of .11. The median increase in the multiple correlation (over UGPA, GMAT-V and GMAT-Q) was .02. As with the findings for "work experience," these results need to be considered in light of the fact that age-related variables are probably not considered in admissions because of their potential relationship to academic performance.

Fifteen of the schools provided indices of the "quality" of students' undergraduate institutions as optional predictors. For most of these, the index was the mean GMAT Total score of all students from the particular undergraduate school who requested that their scores be sent to the undergraduate school. In the other cases, subjective rating schemes were used. For these 15 schools, the simple correlations between FYA and "quality of undergraduate institution" ranged from -.02 to .31, with a median of .15. The median increase in the multiple correlation over the standard predictors was .02 (see Table 3).

Finally, 14 schools furnished undergraduate grade point averages based on subsets of courses, such as the Junior-Senior GPA or the GPA of some content-specific subset of courses. For these 14 schools, the simple correlations between FYA and these "refined" undergraduate GPA variables ranged from .09 to .44, with a median of .30. As for the other optional predictors considered, the median increase in the multiple correlation over the standard predictors was quite small, .01. This may be due in part to dependencies between UGPA and its various "refinements," which are in fact part of the total UGPA.

The results summarized in Table 3 make apparent that the addition of optional predictors to a standard set of variables usually does not increase the multiple correlations significantly in either the practical or the statistical sense. The failure of these variables to increase the predictive validity of a composite of standard preadmission measures should not, however, preclude their use on other grounds, e.g., in selecting candidates who may bring diverse backgrounds or experiences to bear on the graduate education offered by the school. Although first-year average is an easily available index of academic success, FYA is not the only relevant measure of academic success. Furthermore, potential academic success should not be the sole criterion for selecting prospective graduate management students. Some of the optional predictors (e.g., work experience and years since degree) may be more useful than standard measures for predicting other relevant criteria that are more closely related to subsequent managerial effectiveness.

Optional Criteria

Additional criteria were less often specified than optional predictors. Most of the criteria were academic in nature and were based on specific courses or subsets of courses, the exact nature of which was sometimes unclear from the labels given. Courses taken in the first year as well as those taken in subsequent years were used to form subsets. Very few schools specified criteria that were not related to academic performance. The restriction to academic criteria is not surprising, since many of the students sampled were still enrolled in school. Correlations of each of the standard predictors with the most frequently specified optional criteria appear in Table 4. For contrast, the correlations of each of the standard predictors with FYA are shown for the same schools that designated the particular optional criterion.

"Long-range" grade point average was the optional criterion designated most often (10 schools). This criterion was most often defined as "two-year grade point average" and "grade point average at graduation." Table 4 shows that, when compared with FYA, the longer-ranged GPA criteria bear neither consistently higher not consistently lower relationships with the standard predictors. The median correlation of UGPA and FYA for these schools was .24; with longer-ranged GPA it was .23. For GMAT-V, the analogous median correlations were .15 and .16; for GMAT-Q these correlations were .18 and .16.

The second most frequently designated criterion, Quantitative GPA, was chosen by 7 schools. As might be expected, both UGPA and GMAT-V

produced consistently lower correlations with Quantitative GPA than with FYA, which includes the more verbally-oriented courses as well (see Table 4). Also as one might expect, the correlations of GMAT-Q with Quantitative GPA (median = .34) tended to be slightly higher than the correlations of GMAT-Q with FYA (median = .29).

The third most oft-specified criterion, chosen by 6 schools, was "Core GPA," thought to refer to a subset of basic courses common to or required of most students in particular management programs. Here, the correlations of Core GPA with the standard predictors were quite comparable, on the average, with the correlations of FYA with the standard predictors for the same six schools.

In summary, with the exception of the relationship between GMAT-Q and Quantitative GPA, the standard predictors appear to relate most closely to FYA. Both long-range GPAs and Core GPAs show relationships with the standard predictors that are roughly comparable to those shown with FYA.

Summary

This report has provided, for a sample of graduate management schools, (a) a descriptive summary of the validity of GMAT scores and undergraduate grade point average in management schools, and (b) a categorization of optional variables designated by individual schools as indicators of student potential or criteria of student success. Some general conclusion can be drawn.

First, despite some restriction in the range of student performance on the standard predictor variables and the standard criterion of first year average, both undergraduate grade point average and GMAT scores were significantly related to first-year average for a majority of schools. Moreover, when GMAT scores (Verbal and Quantitative) were used in conjunction with undergraduate grade point average, the median multiple correlation was substantial, with GMAT scores contributing, on the average, slightly more to the observed correlations than undergraduate grade point average.

Second, most of the participating schools took advantage of the opportunity to specify optional variables (predictors and criteria). The most frequently studied predictors were work experience, various age-related indices, measures of the quality of the student's undergraduate institution, and undergraduate grade point averages based on more recent courses or on content-specific subsets of courses. Few of these indices correlated more highly with first-year average than did the individual standard predictors, and, on average, they did not significantly increase the multiple correlation of first-year average with the combination of standard predictors. Of course, the findings reviewed do not necessarily reflect the value of the various nonstandard predictors for forecasting performance on other important management-related criteria, either academic or nonacademic in nature.

Relatively few schools chose to specify criterion variables other than first-year average, a situation that probably attests to the difficulty in-

volved in the specification of, and the collection of data for, relevant alternative criteria. With few exceptions, the optional criteria were academic in nature, and were typically grade point averages based on subsets of courses or on courses taken beyond the first year. Generally, these criteria were related to test scores and undergraduate grades to about the same degree that first-year average was related to these standard predictors.

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Table 1

Sample Sizes and Means and Standard Deviations of Standard Predictors and First-year Average for 85 Validity Studies

School	Sample Size	UPGA Mean	UPGA S.D.	GMAT-V Mean	GMAT-V S.D.	GMAT-Q Mean	GMAT-Q S.D.	FYA[a] Mean	FYA[a] S.D.
1	97	2.71	.67	33.5	6.3	34.6	7.8	65.95[b]	3.89
2	389	2.60	.48	27.3	6.7	28.4	6.9	3.20	.32
3	100	3.05	.21	28.8	7.2	30.0	6.7	3.21	.54
4	69	2.90	.48	30.0	6.2	29.8	6.8	3.18	.39
5	133	3.12	.46	29.4	7.0	29.1	7.3	3.46	.18
6	200	3.03	.42	29.9	6.5	30.5	6.2	3.23	.49
7	129	3.28	.42	33.2	6.3	35.6	6.5	3.19	.41
8	183	2.95	.43	31.2	5.7	32.5	6.1	3.29	.55
9	315	2.82	.41	28.6	6.4	29.6	6.6	2.25	.42
10	76	2.79	.44	27.0	6.0	25.8	4.9	3.19	.45
11	113	3.06	.38	32.6	5.6	31.6	7.4	3.45	.32
12	149	3.24	.38	32.8	5.4	32.3	6.0	3.10	.60
13	249	3.00	.41	32.3	6.5	32.2	6.5	3.14	.57
14	135	3.23	.34	33.2	5.4	32.4	6.3	3.37	.29
15	177	3.48	.30	38.4	5.8	35.4	6.7	3.48	.20
16	225	3.27	.45	31.9	5.9	33.3	6.4	3.42	.36
17	264	2.90	.43	30.8	5.8	29.7	6.4	3.12	.41
18	200	2.81	.44	29.4	6.7	30.5	6.5	3.28	.42
19	181	3.47	.33	25.7	7.5	25.4	7.6	3.47	.33
20	176	3.17	.46	34.0	6.6	32.4	6.9	5.43[c]	.83
21	195	2.86	.61	29.2	6.2	29.8	7.0	3.11	.75
22	136	2.89	.53	28.9	6.7	28.5	7.0	3.34	.33

Table 1 (Cont'd)

School	Sample Size	UPGA Mean	UPGA S.D.	GMAT-V Mean	GMAT-V S.D.	GMAT-Q Mean	GMAT-Q S.D.	FYA[a] Mean	FYA[a] S.D.
23	150	2.84	.41	30.0	6.3	31.6	6.7	3.39	.33
24	100	3.00	.40	31.1	5.8	31.3	6.0	3.29	.34
25	200	3.01	.45	29.5	6.4	29.7	6.9	3.30	.51
26	202	3.02	.41	30.1	6.3	30.4	6.3	3.40	.30
27	209	3.30	.30	32.6	6.1	32.9	5.6	3.44	.22
28	350	3.06	.43	29.5	6.8	31.7	7.6	3.38	.34
29	228	3.17	.32	29.3	7.1	31.5	6.8	3.38	.49
30	200	2.99	.45	28.0	6.9	28.1	6.6	3.26	.39
31	111	3.01	.39	32.0	5.7	30.9	6.5	3.48	.31
32	105	2.94	.42	31.8	6.5	29.2	6.1	3.41	.26
33	543	3.13	.39	32.8	7.7	33.9	6.7	3.22	.53
34	128	3.07	.38	31.8	7.3	34.2	7.1	2.76	.67
35	200	3.09	.35	29.3	6.9	27.9	6.6	3.25	.41
36	160	2.90	.47	25.9	8.4	27.5	8.2	3.37	.45
37	112	3.13	.40	30.6	6.4	28.8	7.0	3.30	.37
38	89	2.89	.46	30.5	6.2	33.2	6.0	3.37	.28
39	244	2.69	.49	25.9	7.7	26.8	6.9	3.30	.37
40	171	3.01	.45	29.5	6.1	30.0	6.6	3.42	.35
41	105	2.83	.41	14.9	6.7	15.1	4.9	3.17	.46
42	200	2.81	.45	25.9	7.5	26.6	7.0	3.05	.54
43	139	2.70	.48	29.5	8.2	29.9	7.6	3.43	.33
44	58	3.10	.46	24.8	7.2	27.4	7.7	3.66	.32
45	107	3.03	.42	29.2	7.1	30.5	7.2	3.42	.29

Table 1 (Cont'd)

School	Sample Size	UPGA Mean	UPGA S.D.	GMAT-V Mean	GMAT-V S.D.	GMAT-Q Mean	GMAT-Q S.D.	FYA[a] Mean	FYA S.D.
46	170	2.99	.44	30.4	7.3	30.9	7.1	3.27	.39
47	196	3.42	.32	34.9	6.4	34.5	6.2	3.47	.24
48	200	3.05	.40	31.2	6.5	30.8	6.0	3.51	.26
49	220	2.80	.44	29.6	6.6	30.3	7.0	3.35	.34
50	90	2.88	.42	28.0	7.7	30.2	5.6	2.95	.66
51	100	2.98	.37	26.8	7.9	27.1	7.5	3.45	.29
52	277	3.21	.32	28.8	8.3	30.1	7.0	3.35	.27
53	97	2.99	.42	31.5	6.6	31.0	6.9	3.33	.29
54	213	3.06	.45	29.6	6.5	29.6	6.6	3.43	.36
55	142	2.91	.44	28.7	6.6	29.8	6.2	3.20	.42
56	199	3.11	.45	34.1	7.0	31.5	6.4	5.36[d]	.84
57	204	2.90	.42	27.9	7.3	29.5	6.8	3.49	.26
58	130	3.22	.34	33.6	5.5	33.6	6.0	3.07	.49
59	126	2.93	.49	30.9	8.8	33.6	7.1	0.38[e]	.19
60	202	3.24	.38	32.4	5.8	31.7	6.5	3.26	.40
61	262	3.18	.38	37.6	5.6	37.8	5.4	2.66	.44
62	163	3.22	.42	31.9	7.1	32.9	5.8	3.42	.45
63	175	3.01	.37	28.5	7.3	29.2	7.8	3.27	.40
64	185	2.96	.44	35.5	6.0	33.9	6.3	36.71[f]	8.20
65	138	2.93	.52	31.5	6.2	30.4	6.2	3.22	.44
66	374	3.25	.38	35.7	5.0	36.7	5.4	6.20[g]	.86
67	113	3.18	.45	36.3	6.4	32.6	7.5	2.17[h]	.24
68	200	2.95	.43	31.7	6.5	30.7	6.0	3.48	.35

Table 1 (Cont'd)

School	Sample Size	UPGA Mean	UPGA S.D.	GMAT-V Mean	GMAT-V S.D.	GMAT-Q Mean	GMAT-Q S.D.	FYA[a] Mean	FYA[a] S.D.
69	100	2.90	.48	29.8	6.9	28.4	6.3	3.48	.36
70	180	3.09	.48	32.8	8.3	34.0	6.4	2.74	.57
71	106	3.14	.44	31.4	7.0	30.5	6.8	3.48	.38
72	194	3.12	.41	33.6	6.5	33.6	5.7	3.31	.25
73	280	3.23	42	34.6	6.4	33.1	7.2	3.06	.48
74	92	3.13	.42	34.0	4.9	33.8	5.4	3.42	.31
75	100	2.95	.39	30.1	6.7	30.1	6.9	3.09	.63
76	101	3.14	.50	32.3	7.0	31.3	6.1	3.42	.30
77	364	3.41	.38	35.0	7.5	33.8	7.1	3.46	.32
78	238	3.44	.33	36.8	6.6	38.2	5.4	3.39	.29
79	113	2.80	.45	29.4	6.9	30.1	6.0	3.38	.27
80	85	3.04	.40	31.1	6.0	29.8	6.8	3.19	.38
81	128	2.87	.47	32.8	6.6	31.3	7.5	3.31	.31
82	210	3.19	.38	31.3	8.2	30.2	6.3	3.21	.39
83	100	2.85	.45	28.8	6.7	28.0	7.2	3.26	.38
84	199	3.29	.33	35.5	5.8	33.6	6.4	3.45	.26
85	124	3.00	.44	28.9	7.1	29.8	6.6	3.35	.44

[a]Unless otherwise noted, FYA is on a scale of 0 to 4.

[b]FYA on scale of 40 to 80.

[c]FYA on scale of 3 to 8.

[d]FYA on scale of 1 to 8.

[e]FYA on scale of -1 to +1.

[f]FYA on scale of 0 to 64.

[g]FYA on scale of 0 to 9.

[h]FYA on scale of 0 to 3.

Table 2

Simple and Multiple Correlations of Standard Predictors with First-year Average for 85 Validity Studies

School	UGPA Alone	GMAT-V Alone	GMAT-Q Alone	GMAT-V, GMAT-Q	UGPA, GMAT-V GMAT-Q
1	.22	.42	.42	.54	.58
2	.07	.21	.27	.29	.29
3	.07	.24	.33	.38	.38
4	.16	.15	.18	.19	.23
5	.26	.39	.28	.39	.43
6	.30	.07	.09	.11	.31
7	.31	.04	.14	.14	.33
8	.26	.08	.07	.10	.27
9	.24	.26	.33	.35	.44
10	.39	.31	.14	.31	.44
11	.18	.20	.24	.27	.34
12	.17	.06	.22	.23	.29
13	.18	.27	.06	.27	.32
14	.12	.19	.28	.31	.34
15	.24	.09	.40	.42	.50
16	.18	.13	.13	.18	.23
17	.30	.23	.41	.42	.51
18	.10	.25	.32	.36	.40
19	.19	.33	.28	.34	.38
20	.35	.31	.31	.38	.47
21	.06	.21	.21	.24	.25
22	.24	.23	.21	.26	.35

Table 2 (Cont'd)

School	UGPA Alone	GMAT-V Alone	GMAT-Q Alone	GMAT-V, GMAT-Q	UGPA, GMAT-V, GMAT-Q
23	.19	.25	.30	.33	.35
24	.29	.05	.13	.14	.30
25	.20	.07	.03	.07	.21
26	.27	.25	.29	.36	.45
27	.37	.11	.15	.16	.39
28	.23	.24	.38	.39	.46
29	.27	.25	.33	.38	.45
30	.34	.17	.35	.35	.46
31	.22	.02	.16	.16	.27
32	.27	.35	.27	.41	.45
33	.29	.22	.39	.40	.46
34	.23	.19	.53	.55	.57
35	.24	.29	.33	.38	.42
36	.17	.35	.28	.38	.39
37	.32	.36	.40	.47	.55
38	.36	.32	.31	.38	.50
39	.29	.33	.38	.41	.47
40	.16	.16	.34	.34	.41
41	.27	.39	.27	.40	.46
42	.22	.38	.35	.42	.47
43	.27	.33	.36	.40	.45
44	.05	.31	.23	.45	.46
45	.30	.20	.12	.20	.37

Table 2 (Cont'd)

School	UGPA Alone	GMAT-V Alone	GMAT-Q Alone	GMAT-V, GMAT-Q	UGPA, GMAT-V, GMAT-Q
46	.21	.36	.34	.41	.45
47	.23	.19	.27	.32	.41
48	.25	.23	.18	.26	.35
49	.13	.27	.27	.33	.34
50	.19	.29	.25	.34	.39
51	.31	.15	.14	.17	.36
52	.21	.20	.27	.30	.37
53	.38	.23	.19	.27	.47
54	.28	.11	.14	.15	.31
55	.11	.30	.26	.33	.34
56	.34	.39	.47	.51	.58
57	.17	.12	.06	.12	.21
58	.21	.29	.41	.45	.48
59	.26	.41	.35	.46	.54
60	.17	.07	.30	.30	.35
61	.27	.32	.41	.41	.50
62	.17	.12	.14	.16	.24
63	.17	.29	.37	.38	.41
64	.44	.21	.48	.48	.61
65	.39	.23	.32	.35	.49
66	.33	.16	.30	.33	.48
67	.45	.36	.47	.52	.63
68	.18	.23	.22	.27	.33

Table 2 (Cont'd)

School	UGPA Alone	GMAT-V Alone	GMAT-Q Alone	GMAT-V, GMAT-Q	UGPA, GMAT-V, GMAT-Q
69	.28	.27	.34	.37	.46
70	.34	.30	.48	.49	.58
71	.38	.14	.39	.39	.50
72	.41	.33	.27	.37	.53
73	.42	.42	.47	.50	.58
74	.17	.18	.11	.22	.27
75	.24	.27	.34	.39	.44
76	.33	.40	.31	.42	.50
77	.27	.26	.43	.46	.52
78	.27	.27	.10	.29	.39
79	.27	.28	.32	.36	.48
80	.23	.02	.26	.27	.36
81	.12	.36	.50	.55	.57
82	.25	.33	.36	.43	.47
83	.20	.23	.36	.38	.46
84	.25	.24	.27	.33	.42
85	.37	.32	.42	.47	.58
Median	.24	.25	.30	.35	.44
Range	.05-.45	.04-.42	.03-.53	.07-.55	.21-.63

Table 3

Correlations of the Most Common Optional Predictors with First-year Average

Optional Predictor (Number of Studies)	Correlation with FYA			
	Minimum	Maximum	Median	Median Increase in Multiple R*
Work Experience (30)	-.14	.35	.06	.01
Age-related (28)	-.18	.28	.11	.02
"Quality" of Undergraduate Institution (15)	-.02	.31	.15	.02
"Refined" Undergraduate GPA (14)	.09	.44	.30	.01

*Over UGPA, GMAT-V, and GMAT-Q.

Table 4

Correlations of the Standard Predictors with
FYA and with Optional Criteria

Optional Criterion (Number of Studies)	Correlation of Criterion with UGPA Range	UGPA Median	GMAT-V Range	GMAT-V Median	GMAT-Q Range	GMAT-Q Median
Long-range GPA (10)						
Predictor vs. Long-range GPA	.09-.34	.23	.09-.33	.16	.06-.32	.16
Predictor vs. FYA	.06-.37	.24	.02-.39	.15	.06-.34	.18
GPA in Quantitative Courses (7)						
Predictor vs. Quant. GPA	.07-.32	.19	.01-.33	.16	.12-.49	.34
Predictor vs. FYA	.18-.35	.27	.13-.33	.25	.06-.41	.29
GPA in "Core" Courses (6)						
Predictor vs. Core GPA	.18-.28	.25	.03-.43	.24	.14-.35	.30
Predictor vs. FYA	.19-.29	.23	.02-.38	.24	.16-.35	.30